Shoreline Protection

The Narrows, Islesboro Harbor

Islesboro, Maine

Operations and Maintenance Manual

SEPTEMBER 1984

US Army Corps of Engineers
New England Division

OPERATION AND MAINTENANCE MANUAL
SHORELINE PROTECTION PROJECT
THE NARROWS, ISLESBORO HARBOR
ISLESBORO, MAINE

FORWARD

The successful functioning of bank stabilization works is not assured solely by constructing stone slope protection along the shoreline. If the system is to perform the functions for which it was designed, it must be carefully maintained during normal tide stages and following abnormally high wave and tidal periods.

The need for proper maintenance cannot be too highly stressed. Large damages may be incurred through operating failure caused by deterioration or damage that would have been eliminated by proper maintenance.

Necessary maintenance requires that responsible local persons have a thorough understanding of the recommended methods of maintaining the system. It is the purpose of this manual to provide complete information so that all parties may fully understand their responsibilities in maintaining the shoreline protection system in accordance with the regulations prescribed by the Secretary of the Army as amplified by this manual.

The general flood control Regulations for Maintenance and Operation of Flood Control Works quoted herein were approved by the acting Secretary of War on 9 August 1944. Upon establishment of the Department of Defense, the improvement of rivers and harbors and other waterways for flood control and other purposes, formerly under the jurisdiction of the Secretary of War, became the responsibility of the Secretary of the Army. References herein to the Secretary of War and War Department shall be construed to mean, respectively, the Secretary of the Army and the Department of the Army. Where reference is made to the District Engineer in the Regulations included in this manual, it shall be construed to mean the Division Engineer, New England Division, Corps of Engineers.

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SECTION I
INTRODUCTION

I. AUTHORIZATION

The construction of the shoreline protection project at the Narrows at Islesboro Harbor, Islesboro Maine was authorized by the Chief of Engineers on December 7, 1982 pursuant to the authority contained in Section 14 of the 1946 Flood Control Act as amended.

2. LOCATION

The town of Islesboro is an island located in Waldo County in the west-central section of Penobscot Bay about three miles east of Lincolnville and about 30 miles south of Bangor. It is reached by ferry service from Lincolnville. The project site is located in the central portion of the island where the island narrows down to 500 ft. in width. The protection is on the east side of the island adjacent to Main Road.

3. DESCRITPION OF DAMAGE

Erosion along 325 feet of shoreline over the past three years was threatening the only roadway connecting the north and south sections of the island.

4. DESCRIPTION OF PROJECT

The shoreline stabilization work accomplished by the Corps of Engineers consists primarily of stone (rip-rap) slope protection along the shoreline for a distance of approximately 325 feet.

5. PROTECTION PROVIDED

The stone slope protection will prevent further erosion of the shoreline in this area.

6. CONSTRUCTION HISTORY

Construction of this shoreline stabilization project was initiated in September 1983 and was essentially completed in March 1984. The project was constructed by George C. Hall and Sons, Inc. of Rockland Maine. The Federal cost for the project was approximately $121,000.

7. ASSURANCES OF LOCAL COOPERATION

The assurances of local cooperation requires that operation and maintenance and their resultant annual cost be provided. A copy of the formal assurances is included as Appendix B of this manual.

8. PLANS

Reduced size drawings showing the project as actually constructed is included as Appendix D.

SECTION II
GENERAL REGULATIONS

9. PURPOSE OF THIS MANUAL

The purpose of this manual is to present detailed information to be used as a guide in complying with "Flood Control Regulations - Maintenance and Operation of Flood Control Works" as approved by the Acting Secretary of War on 9 August 1944, and published in this volume as Appendix A. In executing assurances of local cooperation, the city has agreed to maintain and operate the completed works in accordance with these regulations. The regulations which are intended to cover all local protection projects constructed by the Department throughout the United States are general in nature, and obviously cannot give detailed instructions for the maintenance and operation of a specific project. The details set forth in this manual for maintenance and operation for the project are intended to supplement the regulations to permit obtaining all the benefits and protection against erosion for which the project was designed. Failure to maintain and operate the project as required by the regulations and as detailed herein would result in severe property losses.

10. GENERAL RULES AND REGULATIONS

Paragraph 208.10 (a) of the regulations prescribed by the Secretary of War gives general rules for maintenance and operation of structures and facilities constructed by the United States for local protection. Applicable portions are quoted below to avoid the necessary for cross reference and are further defined by remarks under each quotation.

"(1) The structures and facilities constructed by the United States for local flood protection shall be continuously maintained in such a manner and operated at such times and for such periods as may be necessary to obtain the maximum benefits."

These requirements cannot be overstressed, and the town authorities must make adequate provisions for funds, personnel, equipment and materials to allow for the proper maintenance and operation of the shoreline protective works.

"(2) The State, political subidivision thereof, or other responsible local agency, which furnished assurance that it will maintain and operate flood control works in accordance with regulations prescribed by the Secretary of War, as required by law, shall appoint a permanent committee consisting of or headed by an official hereinafter called the "Superintendent," who shall be responsible for the development and maintenance of the project works during the periods of low water, all without cost to the United States."

The committee should be composed of competent members, preferably persons experienced in engineering or construction work. The committee must be given broad authority to carry out its responsibilities. The

name, address and office and home telephone numbers of the Superintendent, and any changes thereof, shall be promptly furnished to the Division Engineer, New England Division, Corp of Engineers.

"(3) N/A

"(4) N/A

"(5) No improvement shall be passed over, under, or through the walls, leaves, improved channels or floodways, nor shall any excavation or construction be permitted within the limits of the project right-of-way, nor shall any change be made in any feature of the works without prior determination by the District Engineer of the War Department or his authorized representatives that such improvement, excavation, construction, or alteration will not adversely affect the functioning of the protective facilities. Such improvements or alterations as may be found to be desirable and permissible under the above determination shall be constructed in accordance with the standard engineering practice. Advice regarding the effect of proposed improvements or alterations on the functioning of the project and information concerning methods of construction acceptable under standard engineering practice shall be obtained from the District Engineer or, if otherwise obtained, shall be submitted for his approval. Drawings or prints showing such improvements or alterations as finally constructed shall be furnished the District Engineer after completion of the work."

Any contemplated improvements or alterations as outlined above must be submitted to the U.S. Army Engineer Division New England, Waltham, Massachusetts, and the approval of the Division Engineer obtained prior to the town authorizing the work. All requests for approval shall be in writing and complete drawings in duplicate. One set, which shall be in reproducible form, must be submitted along the with a full description of the work intended. The town will be held responsible for obtaining prior approval from the Corps of Engineers for any improvements or alterations proposed by itself, private parties or any public parties. The town shall furnish the Division Engineer as-built drawings, in duplicate, of the completed work.

"(6) It shall be the duty of the Superintendent to submit a semiannual report to the District Engineer covering inspection, maintenance, and operation of the protective works."

See paragraph 13 of this SECTION for instructions on submitting reports.

"(7) The District Engineer or his authorized representatives shall have access at all times to all portions of the protective works."

The Division Engineer or his representatives will make periodic inspections of the protective works to determine if the project is being properly maintained and operated by the town.

"(8) Maintenance measures or repairs which the District Engineer deems necessary shall be promptly taken or made."

The town should maintain the facilities and keep them in good repair and not wait for the Division Engineer to call such matters to its attention. Upon request, the Division office will advise the town how to make any major repairs to the facilities.

"(9) OMITTED.

"(10) The War Department will furnish local interests with an Operation and Maintenance Manual for each completed project, to assist them in carrying out their obligations under these regulations."

The flood control committee should familiarize itself with the contents of this manual. The town authorities are encouraged to call on the Division Office of the Corps of Engineers for any additional advice or instructions required by them in carrying out the town's obligations for maintaining and operating the protection facilities.

11. MAINTENANCE.

a. The word "maintenance as used in this manual applies to the upkeep, repair, replacement and care of the work constructed by the United States and turned over to the town. If the work is neglected there will be deterioration and possible failure in flood time when there is dire need of dependable protection.

b. Maintenance includes a regular walking inspection over the entire system. The purpose of the inspection is to detect any deterioration of project features that indicates a need for repair or replacement.

12. OPERATION.

a. The term "operation" as used in this manual, refers to the actual functions of the various features of the protection works during abnormally high tide and severe wave conditions.

b. When abnormal tides and waves are expected, it is important that the Superintendent make immediate decisions, take prompt action and has the authority to carry out his decisions to insure proper continued operation of the protection work.

c. To insure correct operation the following items are considered to be essential:

(1) At least one person (preferably 2 or 3) be familiar with the protection works including the various types of materials comprising the shoreline protection work.

(2) The sources of these materials should be established ahead of time. If possible a small amount of each type of materials should be stockpiled nearby for quick use.

(3) Sufficient loading, hauling and placing equipment should be readily available for providing and placing the repair materials.

(4) Sufficient experienced personnel should be readily available for patrolling and performing the repair work.

13. REPORTS

a. The regulations prescribed by the Secretary of the Army call for semi-annual reports to be submitted by the Superintendent to the Division Engineer covering inspection and maintenance. Inspection of the protective facilities shall be made immediately prior to flood seasons, immediately following floods, and otherwise at intervals not exceeding 90 days as required by regulations.

b. To assist the Superintendent in making his inspection, a sample form is included in Appendix C. The Superintendent shall have additional copies printed for use in submitting his reports.

c. The semi-annual reports shall be submitted in triplicate to the Division Engineer each February and August. The reports will be submitted in letter form with copies of the inspection forms covering the inspections made during the period of the reports. The reports shall cover the following points:

(1) A description of the maintenance work performed in the preceding six months.

(2) The number and classification of men working on maintenance, regularly and intermittently.

(3) Description of any work performed by contract on the repair or improvements of the project.

SECTION III
SHORELINE PROTECTION WORK

14. DESCRIPTION

The shoreline stabilization work accomplished by the Corps of Engineers consists of the placement of stone slope protection for a distance of approximately 325 feet.

15. MAINTENANCE

Paragraph 208.10(g)(1) of the prescribed regulations sets forth rules for the maintenance of channels and floodways. These rules are quoted below, followed by brief comments where applicable to clarify these rules as they apply to the project.

"Channels and Floodways. - (1) Maintenance. - Periodic inspections of improved channels and floodways shall be made by the Superintendent to be certain that;"

(i) The channel or floodway is clear of debris, weeds and wild growth."

All debris and growth at the protective work shall be removed promptly. Failure to remove wildgrowth could eventually lead to structural damage to the slope from the root system.

(ii) The channel or floodway is not being restricted by the depositing of waste materials, building of unauthorized structures or other encroachments;"

Dumping of waste materials or any types of encroachment on the protective work shall be prohibited and prompt steps shall be taken to remove or have removed any such encroachments.

(iii) N/A

(iv) Banks are not being damaged by rain or wave wash and that no sloughing of bank has occured;"

Banks damaged by rain or wave wash or sloughing shall be inspected for damage and be repaired promptly, using materials similar to that used in their original construction.

Such inspection shall be made at intervals not to exceed 90 days. Immediate steps will be taken to remedy any adverse conditions disclosed by such inspections.

(v.) N/A

((vi) N/A

16. OPERATION

Paragraph 208.10(g)(2) of the prescribed regulations gives rules for operation of channel and floodways. These rules are paraphrased below with regard to the project.

(1) Operation. The bank of the shoreline along the project area shall be patrolled during periods of high water, measures shall be taken to protect thsoe reaches being attacked by waves. Immediate appropriate measures shall be taken to prevent the formation of jams of ice or debris, and large objects which become lodged against the bank shall be removed. The project shall be thoroughly inspected immediately following each major high water period. As soon as practicable thereafter, all snags and other debris shall be removed and all damage to the stone protection shall be repaired.

APPENDIX A

REGULATIONS PRESCRIBED BY THE SECRETARY OF THE ARMY

TITLE 33—NAVIGATION AND NAVIGABLE WATERS

Chapter II—Corps of Engineers, War Department

PART 208—FLOOD CONTROL REGULATIONS

MAINTENANCE AND OPERATION OF FLOOD CONTROL WORKS

Pursuant to the provisions of section 3 of the Act of Congress approved June 22, 1936, as amended and supplemented (49 Stat. 1571; 50 Stat. 877; and 55 Stat. 638; 33 U. S. C. 701c; 701c–1), the following regulations are hereby prescribed to govern the maintenance and operation of flood control works:

§ 208.10 *Local flood protection works; maintenance and operation of structures and facilities.*—(a) *General.* (1) The structures and facilities constructed by the United States for local flood protection shall be continuously maintained in such a manner and operated at such times and for such periods as may be necessary to obtain the maximum benefits.

(2) The State, political subdivision thereof, or other responsible local agency, which furnished assurance that it will maintain and operate flood control works in accordance with regulations prescribed by the Secretary of War, as required by law, shall appoint a permanent committee consisting of or headed by an official hereinafter called the "Superintendent," who shall be responsible for the development and maintenance of, and directly in charge of, an organization responsible for the efficient operation and maintenance of all of the structures and facilities during flood periods and for continuous inspection and maintenance of the project works during periods of low water, all without cost to the United States.

(3) A reserve supply of materials needed during a flood emergency shall be kept on hand at all times.

(4) No encroachment or trespass which will adversely affect the efficient operation or maintenance of the project works shall be permitted upon the rights-of-way for the protective facilities.

(5) No improvement shall be passed over, under, or through the walls, levees, improved channels or floodways, nor shall any excavation or construction be permitted within the limits of the project right-of-way, nor shall any change be made in any feature of the works without prior determination by the District Engineer of the War Department or his authorized representative that such improvement, excavation, construction, or alteration will not adversely affect the functioning of the protective facilities. Such improvements or alterations as may be found to be desirable and permissible under the above determination shall be constructed in accordance with standard engineering practice. Advice regarding the effect of proposed improvements or alterations on the functioning of the project and information concerning methods of construction acceptable under standard engineering practice shall be obtained from the District Engineer or, if otherwise obtained, shall be submitted for his approval. Drawings or prints showing such improvements or alterations as finally constructed shall be furnished the District Engineer after completion of the work.

(6) It shall be the duty of the Superintendent to submit a semiannual report to the District Engineer covering inspection, maintenance, and operation of the protective works.

(7) The District Engineer or his authorized representatives shall have access at all times to all portions of the protective works.

(8) Maintenance measures or repairs which the District Engineer deems necessary shall be promptly taken or made.

(9) Appropriate measures shall be taken by local authorities to insure that the activities of all local organizations operating public or private facilities connected with the protective works are coordinated with those of the Superintendent's organization during flood periods.

(10) The War Department will furnish local interests with an Operation and Maintenance Manual for each completed project, or separate useful part thereof, to assist them in carrying out their obligations under these regulations.

(b) *Levees.*—(1) *Maintenance.* The Superintendent shall provide at all times such maintenance as may be required to insure serviceability of the structures in time of flood. Measures shall be taken to promote the growth of sod, exterminate burrowing animals, and to provide for routine mowing of the grass and weeds, removal of wild growth and drift deposits, and repair of damage caused by erosion or other forces. Where practicable, measures shall be taken to retard bank erosion by planting of willows or other suitable growth on areas riverward of the levees. Periodic inspections shall be made by the Superintendent to insure that the above maintenance measures are being effectively carried out and, further, to be certain that:

(i) No unusual settlement, sloughing, or material loss of grade or levee cross section has taken place;

(ii) No caving has occurred on either the land side or the river side of the levee which might affect the stability of the levee section;

(iii) No seepage, saturated areas, or sand boils are occurring;

(iv) Toe drainage systems and pressure relief wells are in good working condition, and that such facilities are not becoming clogged;

(v) Drains through the levees and gates on said drains are in good working condition;

(vi) No revetment work or riprap has been displaced, washed out, or removed;

(vii) No action is being taken, such as burning grass and weeds during inappropriate seasons, which will retard or destroy the growth of sod;

(viii) Access roads to and on the levee are being properly maintained;

(ix) Cattle guards and gates are in good condition;

(x) Crown of levee is shaped so as to drain readily, and roadway thereon, if any, is well shaped and maintained;

(xi) There is no unauthorized grazing or vehicular traffic on the levees;

(xii) Encroachments are not being made on the levee right-of-way which might endanger the structure or hinder its proper and efficient functioning during times of emergency.

Such inspections shall be made immediately prior to the beginning of the flood season; immediately following each major high water period, and otherwise at intervals not exceeding 60 days, and such intermediate times as may be necessary to insure the best possible care of the levee. Immediate steps will be taken to correct dangerous conditions disclosed by such inspections. Regular maintenance repair measures shall be accomplished during the appropriate season as scheduled by the Superintendent.

(2) *Operation.* During flood periods the levee shall be patrolled continuously to locate possible sand boils or unusual wetness of the landward slope and to be certain that:

(i) There are no indications of slides or sloughs developing;

(ii) Wave wash or scouring action is not occurring;

(iii) No low reaches of levee exist which may be overtopped;

(iv) No other conditions exist which might endanger the structure.

Appropriate advance measures will be taken to insure the availability of adequate labor and materials to meet all contingencies. Immediate steps will be taken to control any condition which endangers the levee and to repair the damaged section.

(c) *Flood walls.*—(1) *Maintenance.* Periodic inspections shall be made by the Superintendent to be certain that:

(i) No seepage, saturated areas, or sand boils are occurring;

(ii) No undue settlement has occurred which affects the stability of the wall or its water tightness;

(iii) No trees exist, the roots of which might extend under the wall and offer accelerated seepage paths;

(iv) The concrete has not undergone cracking, chipping, or breaking to an extent which might affect the stability of the wall or its water tightness;

(v) There are no encroachments upon the right-of-way which might endanger the structure or hinder its functioning in time of flood;

(vi) Care is being exercised to prevent accumulation of trash and debris adjacent to walls, and to insure that no fires are being built near them;

(vii) No bank caving conditions exist riverward of the wall which might endanger its stability;

(viii) Toe drainage systems and pressure relief wells are in good working condition, and that such facilities are not becoming clogged.

Such inspections shall be made immediately prior to the beginning of the flood season, immediately following each major high water period, and otherwise at intervals not exceeding 60 days. Measures to eliminate encroachments and effect repairs found necessary by such inspections shall be undertaken immediately. All repairs shall be accomplished by methods acceptable in standard engineering practice.

(2) *Operation.* Continuous patrol of the wall shall be maintained during flood periods to locate possible leakage at monolith joints or seepage underneath the wall. Floating plant or boats will not be allowed to lie against or tie up to the wall. Should it become necessary during a flood emergency to pass anchor cables over the wall, adequate measures shall be taken to protect the concrete and construction joints. Immediate steps shall be taken to correct any condition which endangers the stability of the wall.

(d) *Drainage structures.*—(1) *Maintenance.* Adequate measures shall be taken to insure that inlet and outlet channels are kept open and that trash, drift, or debris is not allowed to accumulate near drainage structures. Flap gates and manually operated gates and valves on

drainage structures shall be examined, oiled, and trial operated at least once every 90 days. Where drainage structures are provided with stop log or other emergency closures, the condition of the equipment and its housing shall be inspected regularly and a trial installation of the emergency closure shall be made at least once each year. Periodic inspections shall be made by the Superintendent to be certain that:

(i) Pipes, gates, operating mechanism, riprap, and headwalls are in good condition;

(ii) Inlet and outlet channels are open;

(iii) Care is being exercised to prevent the accumulation of trash and debris near the structures and that no fires are being built near bituminous coated pipes;

(iv) Erosion is not occurring adjacent to the structure which might endanger its water tightness or stability.

Immediate steps will be taken to repair damage, replace missing or broken parts, or remedy adverse conditions disclosed by such inspections.

(2) *Operation.* Whenever high water conditions impend, all gates will be inspected a short time before water reaches the invert of the pipe and any object which might prevent closure of the gate shall be removed. Automatic gates shall be closely observed until it has been ascertained that they are securely closed. Manually operated gates and valves shall be closed as necessary to prevent inflow of flood water. All drainage structures in levees shall be inspected frequently during floods to ascertain whether seepage is taking place along the lines of their contact with the embankment. Immediate steps shall be taken to correct any adverse condition.

(e) *Closure structures*—(1) *Maintenance.* Closure structures for traffic openings shall be inspected by the superintendent every 90 days to be certain that:

(i) No parts are missing;

(ii) Metal parts are adequately covered with paint;

(iii) All movable parts are in satisfactory working order;

(iv) Proper closure can be made promptly when necessary;

(v) Sufficient materials are on hand for the erection of sand bag closures and that the location of such materials will be readily accessible in times of emergency.

Tools and parts shall not be removed for other use. Trial erections of one or more closure structures shall be made once each year, alternating the structures chosen so that each gate will be erected at least once in each 3-year period. Trial erection of all closure structures shall be made whenever a change is made in key operating personnel. Where railroad operation makes trial erection of a closure structure infeasible, rigorous inspection and drill of operating personnel may be substituted therefor. Trial erection of sand bag closures is not required. Closure materials will be carefully checked prior to and following flood periods, and damaged or missing parts shall be repaired or replaced immediately.

(2) *Operation.* Erection of each movable closure shall be started in sufficient time to permit completion before flood waters reach the top of the structure sill. Information regarding the proper method of erecting each individual closure structure, together with an estimate of the time required by an experienced crew to complete its erection will be given in the Operation and Maintenance Manual which will be furnished local interests upon completion of the project. Closure structures will be inspected frequently during flood periods to ascertain that no undue leakage is occurring and that drains provided to care for ordinary leakage are functioning properly. Boats or floating plant shall not be allowed to tie up to closure structures or to discharge passengers or cargo over them.

(f) *Pumping plants*—(1) *Maintenance.* Pumping plants shall be inspected by the Superintendent at intervals not to exceed 30 days during flood seasons and 90 days during off-flood seasons to insure that all equipment is in order for instant use. At regular intervals, proper measures shall be taken to provide for cleaning plant, buildings, and equipment, repainting as necessary, and lubricating all machinery. Adequate supplies of lubricants for all types of machines, fuel for gasoline or diesel powered equipment, and flash lights or lanterns for emergency lighting shall be kept on hand at all times. Telephone service shall be maintained at pumping plants. All equipment, including switch gear, transformers, motors, pumps, valves, and gates shall be trial operated and checked at least once every 90 days. Megger tests of all insulation shall be made whenever wiring has been subjected to undue dampness and otherwise at intervals not to exceed one year. A record shall be kept showing the results of such tests. Wiring disclosed to be in an unsatisfactory condition by such tests shall be brought to a satisfactory condition or shall be promptly replaced. Diesel and gasoline engines shall be started at such intervals and allowed to run for such length of time as may be necessary to insure their serviceability in times of emergency. Only skilled electricians and mechanics shall be employed on tests and repairs. Operating personnel for the plant shall be present during tests. Any equipment removed from the station for repair or replacement shall be returned or replaced as soon as practicable and shall be trial operated after reinstallation. Repairs requiring removal of equipment from the plant shall be made during off-flood seasons insofar as practicable.

(2) *Operation.* Competent operators shall be on duty at pumping plants whenever it appears that necessity for pump operation is imminent. The operator shall thoroughly inspect, trial operate, and place in readiness all plant equipment. The operator shall be familiar with the equipment manufacturers' instructions and drawings and with the "Operating Instructions" for each station. The equipment shall be operated in accordance with the above-mentioned "Operating Instructions" and care shall be exercised that proper lubrication is being supplied all equipment, and that no overheating, undue vibration or noise is occurring. Immediately upon final recession of flood waters, the pumping station shall be thoroughly cleaned, pump house sumps flushed, and equipment thoroughly inspected, oiled and greased. A record or log of pumping plant operation shall be kept for each station, a copy of which shall be furnished the District Engineer following each flood.

(g) *Channels and floodways* — (1) *Maintenance.* Periodic inspections of improved channels and floodways shall be made by the Superintendent to be certain that:

(i) The channel or floodway is clear of debris, weeds, and wild growth;

(ii) The channel or floodway is not being restricted by the depositing of waste materials, building of unauthorized structures or other encroachments;

(iii) The capacity of the channel or floodway is not being reduced by the formation of shoals;

(iv) Banks are not being damaged by rain or wave wash, and that no sloughing of banks has occurred;

(v) Riprap sections and deflection dikes and walls are in good condition;

(vi) Approach and egress channels adjacent to the improved channel or floodway are sufficiently clear of obstructions and debris to permit proper functioning of the project works.

Such inspections shall be made prior to the beginning of the flood season and otherwise at intervals not to exceed 90 days. Immediate steps will be taken to remedy any adverse conditions disclosed by such inspections. Measures will be taken by the Superintendent to promote the growth of grass on bank slopes and earth deflection dikes. The Superintendent shall provide for periodic repair and cleaning of debris basins, check dams, and related structures as may be necessary.

(2) *Operation.* Both banks of the channel shall be patrolled during periods of high water, and measures shall be taken to protect those reaches being attacked by the current or by wave wash. Appropriate measures shall be taken to prevent the formation of jams of ice or debris. Large objects which become lodged against the bank shall be removed. The improved channel or floodway shall be thoroughly inspected immediately following each major high water period. As soon as practicable thereafter, all snags and other debris shall be removed and all damage to banks, riprap, deflection dikes and walls, drainage outlets, or other flood control structures repaired.

(h) *Miscellaneous facilities* — (1) *Maintenance.* Miscellaneous structures and facilities constructed as a part of the protective works and other structures and facilities which function as a part of, or affect the efficient functioning of the protective works, shall be periodically inspected by the Superintendent and appropriate maintenance measures taken. Damaged or unserviceable parts shall be repaired or replaced without delay. Areas used for ponding in connection with pumping plants or for temporary storage of interior run-off during flood periods shall not be allowed to become filled with silt, debris, or dumped material. The Superintendent shall take proper steps to prevent restriction of bridge openings and, where practicable, shall provide for temporary raising during floods of bridges which restrict channel capacities during high flows.

(2) *Operation.* Miscellaneous facilities shall be operated to prevent or reduce flooding during periods of high water. Those facilities constructed as a part of the protective works shall not be used for purposes other than flood protection without approval of the District Engineer unless designed therefor. (49 Stat. 1571, 50 Stat. 877; and 55 Stat. 638; 33 U.S.C. 701c; 701c-1) (Regs. 9 August 1944, CE SPEWP)

[SEAL] J. A. ULIO,
Major General,
The Adjutant General.

(F. R. Doc. 44-12288; Filed, August 18, 1944; 9:45 a. m.)

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APPENDIX B

ASSURANCE OF LOCAL COOPERATION

AGREEMENT BETWEEN

THE UNITED STATES OF AMERICA

AND

THE TOWN OF ISLESBORO

FOR LOCAL COOPERATION AT THE

EMERGENCY SHORELINE PROTECTION PROJECT

ISLESBORO HARBOR, ISLESBORO, MAINE

THIS AGREEMENT entered into this 9th day of June, 1983, by and between the UNITED STATES OF AMERICA (hereinafter called the "Government"), represented by the Contracting Officer executing this agreement and the TOWN OF ISLESBORO (hereinafter called the "Town"), acting by and through its Board of Selectmen,

WITNESSETH THAT:

WHEREAS, construction of the emergency shoreline protection project at the Narrows, Islesboro Harbor, Islesboro, Maine, comprising of placement of a graded quarry stone revetment along a 325 foot reach of eroding shoreline (hereinafter called the "Project"), was approved by the Chief of Engineers on 7 December 1982 under authority granted by Section 14 of the 1946 Flood Control Act, Public Law 79-526, (33 U.S.C.A. 701r), as amended by Section 27 of the Water Resources Development Act of 1974, Public Law 93-251, approved 7 March 1974; and

WHEREAS, the Town hereby represents that it has the authority and capability to furnish the non-Federal cooperation required by the Federal legislation authorizing the Project and by other applicable law.

NOW, THEREFORE, the parties agree as follows:

1. The Town agrees that, if the Government shall commence construction of the emergency shoreline protection project at the Narrows, Islesboro Harbor, Islesboro, Maine, substantially in accordance with the approval of the Chief of Engineers under authority of Section 14 of the 1946 Flood Control Act, Public Law 79-526, as amended, the Town shall in consideration of the Government commencing construction of such Project, fulfill the requirements of non-Federal cooperation in such legislation, to wit:

a. Assume responsibility for all costs in excess of the Federal limitation of $250,000.00 to insure that expenditure of Federal funds will result in a complete and fully effective project. The Federal cost limitation includes cost of all investigations, planning, engineering, supervision, inspection and administration involved in development and construction.

b. Provide, without cost to the Government, all lands, easements and rights-of-way necessary for project construction.

c. Hold and save the Government free from damages due to the construction, operation and maintenance of the project except where such damages are due to the fault of the Government or its contractors.

d. Maintain and operate the project after completion without cost to the Government in accordance with regulations prescribed by the Secretary of the Army.

e. Prevent future encroachment which might interfere with proper functioning of the project.

f. Comply with Title VI of the Civil Rights Act of 1964 (78 Stat. 241) and Department of Defense directive 5500.11 issued pursuant thereto and published in Part 300 of Title 32, Code of Federal Regulations.

g. Comply with requirements of non-Federal cooperation specified in Sections 210 and 305 of Public Law 91-646 approved 2 January 1971, entitled: "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970."

2. The Town hereby gives the Government a right to enter upon, at reasonable times and in a reasonable manner, lands which the Town owns or controls, for access to the Project for the purpose of inspection, and for the purpose of operation, repairing and maintaining the Project, if such inspection shows that the Town for any reason is failing to repair and maintain the Project in accordance with the assurances hereunder and has persisted in such failure after a reasonable notice in writing by the Government delivered to Town officials. No operation, repair and maintenance by the Government in such event shall operate to relieve the Town of responsibility to meet its obligations as set forth in paragraph 1 of this agreement, or to preclude the Government from pursuing any other remedy at law or equity.

IN WITNESS WHEREOF, the parties hereto have executed this contract as of the day and year first above written.

THE UNITED STATES OF AMERICA

By _____
CARL B. SCIPLE
Colonel, Corps of Engineers
Division Engineer
Contracting Officer

FOR THE SECRETARY OF THE ARMY:

Date: 28 June 83

THE TOWN OF ISLESBORO

By _____

_____

_____

_____

_____
BOARD OF SELECTMEN

CERTIFICATE OF AUTHORITY

I certify that I am Counsel for the Town of Islesboro, that the Town of Islesboro is a legally constituted public body with full authority and capability to perform the terms of the agreement between the United States of America and the Town of Islesboro in connection with the above-described small navigation project, and to pay damages, if necessary, in the event of the failure to perform in accordance with Section 221 of Public Law 91-611 and that the persons who have executed the contract on behalf of the Town of Islesboro have acted within their statutory authority.

IN WITNESS WHEREOF, I have made and executed this certificate this 9th day of June, 1983.

Gregory T. Maguire Esq.
Counsel for the Town of Islesboro

CERTIFICATION

I, Diane L. Roberson, Deputy do hereby certify that I am Town Clerk of the Town of Islesboro, Maine, named herein; that Cecil Creelman, L.L. Roberson, III, Peter N. Davis, & Leonard Bates and _____, who signed this agreement on behalf of the Town of Islesboro, were then and there duly elected and qualified Selectmen of the Town of Islesboro, that said agreement was duly signed for and on behalf of the Town of Islesboro, by virtue of their authority as Selectmen and is within the scope of their statutory powers. I further certify that Greg Marquise, who approved the agreement, was Counsel for the Town.

IN WITNESS WHEREOF, I have hereunto affixed my hand and seal of the Town of Islesboro, this 9th day of June, 1983.

Diane L. Roberson
Deputy Town Clerk

APPENDIX C

INSPECTION REPORT FORMS

DESIGNATION OF SUPERINTENDENT

Name Of Project: _____

Location: _____

MAINTAINING MUNICIPAL AGENCY:

Agency: _____

Address: _____ Tel. No. _____

"SUPERINTENDENT" - as required by Section 208.10 (a) (2), Chap II, Title 33 USC

Name & Title: _____

Employed by: _____

Business Address: _____

Business Tel. No: _____

Nights, Sundays, Address: _____

Nights, Sundays, Tel. No: _____

Remarks:

Signed _____

Title: _____

Date: _____

NOTE: To be submitted and updated as necessary by the responsible agency which will maintain and operate the works in accordance with regulations prescribed by the Secretary of the Army as required by law (Title 33, Chap. 208, Sec II, USC).

LOCAL FLOOD PROTECTION PROJECT INSPECTION REPORT

Project:

Maintaining Agency:

Type Inspection: _____Semi-Annual Staff ____90 Day Interim

River Basin: **Date of Inspection**

Feature	Sat	Unsat	Deficiencies
PUMPING STATIONS - STRUCTURES			N/A
INTERIOR			N/A
EXTERIOR			N/A
PUMPS - MOTORS - ENGINES			N/A
TRIAL OPERATED			N/A
GENERAL CONDITION			N/A
POWER SOURCE			N/A
INSULATION TESTS			N/A
METAL INTAKES/OUTLETS			N/A
GATE VALVES			N/A
GATES - DRAINAGE STRUCTURES			N/A
TRIAL OPERATED			N/A
GENERAL CONDITION			N/A
LUBRICATION			N/A
RIVERBANK			
GENERAL CONDITION			
SLOPES/EROSION			
SAND BOILS/CAVING			
TRESPASSING			
SLOPE PROTECTION			
DRAINS			
STOP-LOGS - LOG BOOM			N/A
CONDITION OF LOGS			N/A
AVAILABILITY OF LOGS			N/A
HIGHWAY SLOTS			N/A
STORAGE FACILITIES			N/A
CHANNELS - OUTLET WORKS CHANNEL			
BANKS			
OBSTRUCTION CONTROL			

Feature	Sat	Unsat	Deficiencies
CONCRETE STRUCTURES			
SURFACE			
SETTLEMENT			
JOINTS			
DRAINS			
MISCELLANEOUS			
EMERGENCY OPER. PLAN			
EMERGENCY EQUIPMENT			
SEMI-ANNUAL REPORT			

Inspection Party:

Photographs Taken:

Remarks & Additional Comments:

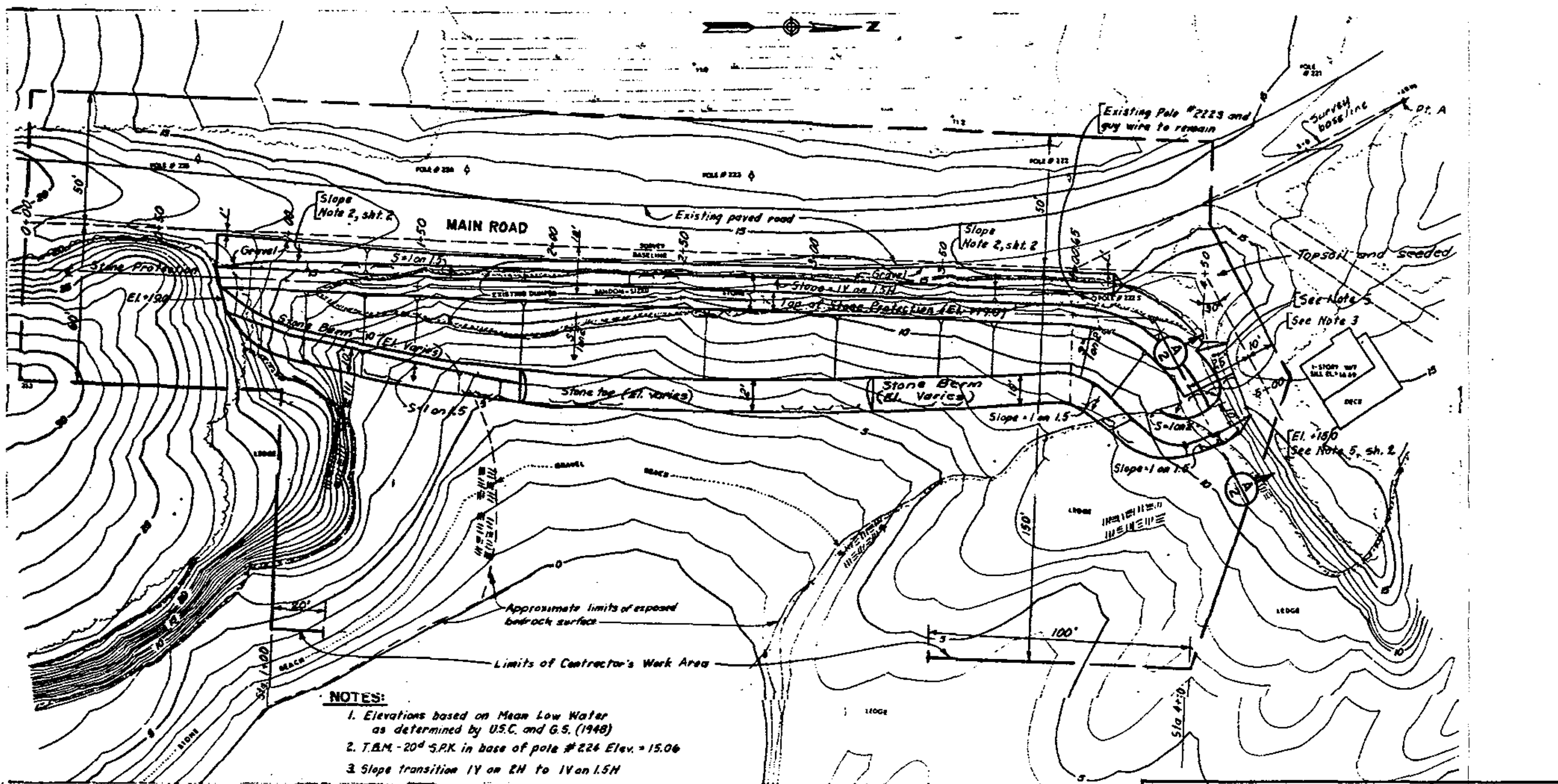
(Indicate Here Observations, Discussions, Specific Feature Deficiencies, Recommendations and any other pertinent information. Use Continuation Sheet if necessary.)

X ALL APPLICABLE ITEMS. IF UNSAT INDICATE SPECIFIC DEFICIENCIES. INDICATE IF NOT APPLICABLE.

DATE	INSPECTED BY: TYPED NAME & TITLE	SIGNATURE

APPENDIX D

AS-BUILT DRAWINGS

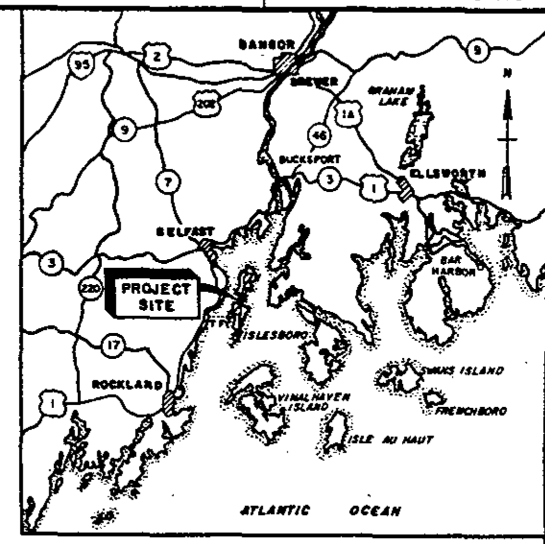


NOTES:

1. Elevations based on Mean Low Water as determined by U.S.C. and G.S. (1948)
2. T.B.M. - 20d S.P.K. in base of pole # 224 Elev. = 15.06
3. Slope transition 1V on 2H to 1V on 1.5H
4. End of Stone Protection at El. +19.0. Stone protection then slopes downward. See Section A/2
5. Fill this area with gravel bedding material.

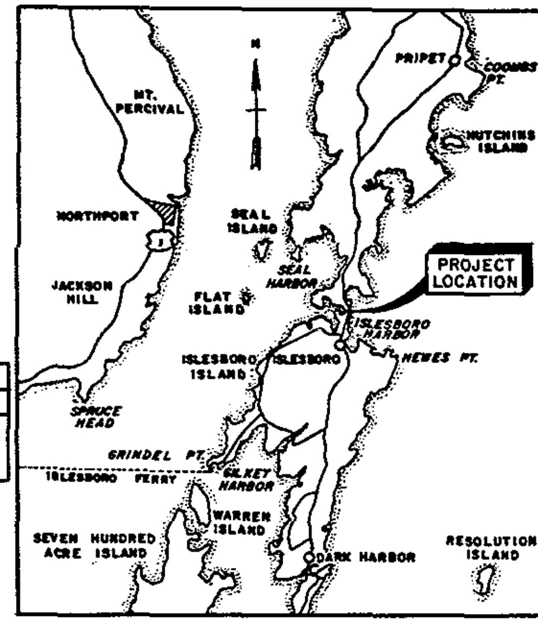
SITE PLAN

SCALE: 1" = 20'



LOCATION MAP

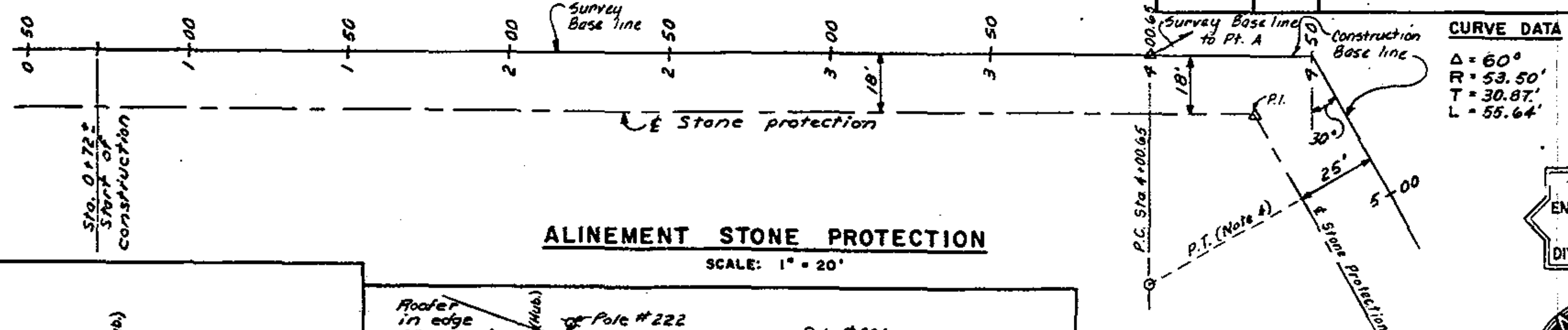
SCALE IN MILES



PROJECT MAP

SCALE IN MILES

INDEX TO DRAWINGS		
DRAWING NO.	SH. NO.	TITLE
ISL - 1	1	SITE PLAN AND INDEX
"	2	SECTIONS

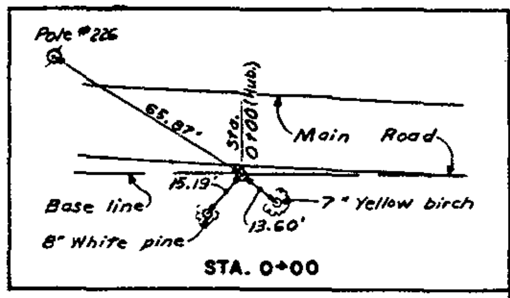


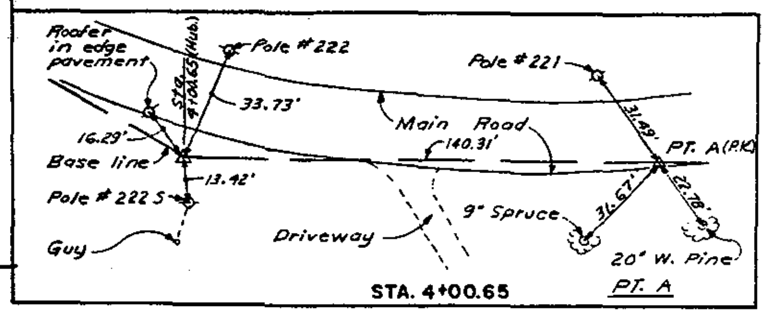
CURVE DATA

Δ = 60°
R = 53.50'
T = 30.87'
L = 55.64'

ALINEMENT STONE PROTECTION

SCALE: 1" = 20'





SURVEY TIES

SCALE: 1" = 20'

VALUE ENGINEERING PAYS DIVIDENDS

SAFETY PAYS

GRAPHIC SCALES

1" = 20' 20' 0 20' 40'

As Built Drawing

DACW 33-83-C-0074

REVISION	DATE	DESCRIPTION
	9-17-84	Final field corrections.

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION
CORPS OF ENGINEERS
WALTHAM, MASS.

DES. BY J.H. — DR. BY J.B.M. — CK. BY A.A.M.

WATER RESOURCES DEVELOPMENT PROJECT
THE NARROWS, ISLESBORO, MAINE

EMERGENCY SHORELINE PROTECTION

SITE PLAN AND INDEX

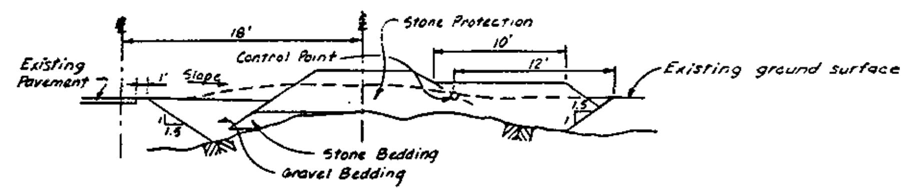
SUBMITTED: CHIEF, DESIGN SECTION
APPROVAL RECOMMENDED: CHIEF, GEOTECH. & ENG. BRANCH
PROJECT MANAGER
APPROVAL RECOMMENDED: CHIEF, PROJECT MNGT. BRANCH
APPROVED: CHIEF, ENGINEERING DIVISION — DATE AUG. 1983

SCALE: AS SHOWN — SPEC. NO. DACW33-83-B-0055

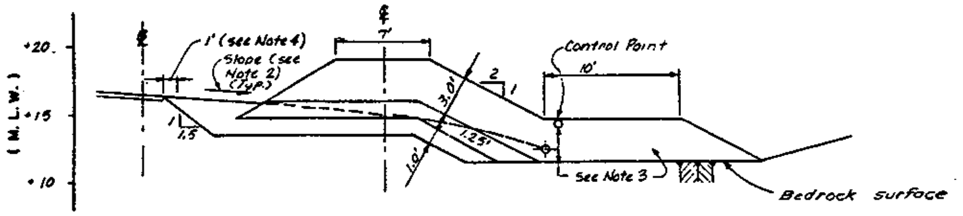
DRAWING NUMBER ISL-1

SHEET 1

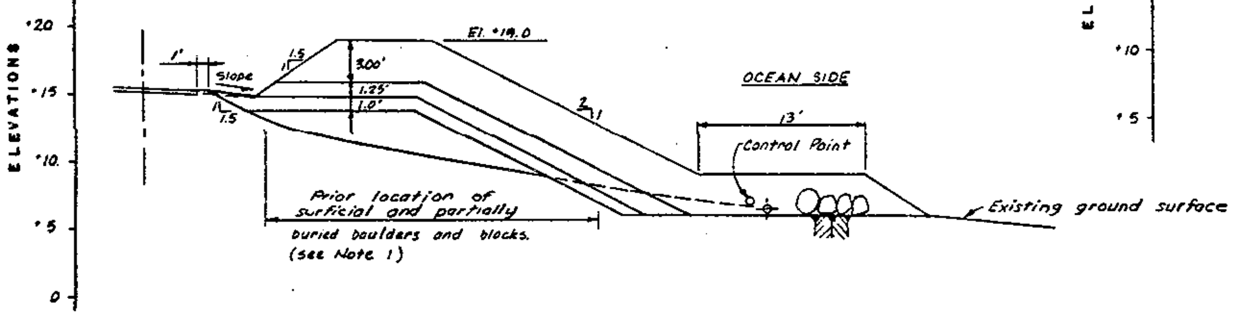
CORPS OF ENGINEERS | U. S. ARMY



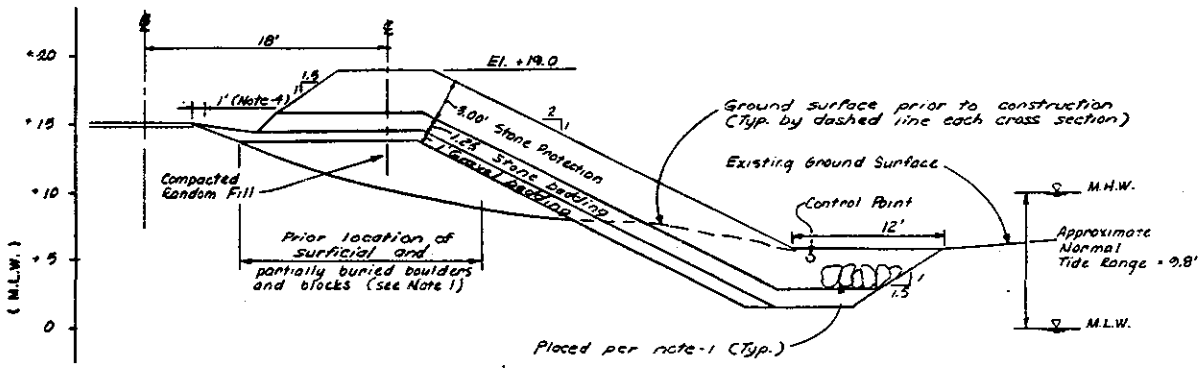
STA. 0 + 85
SCHEMATIC



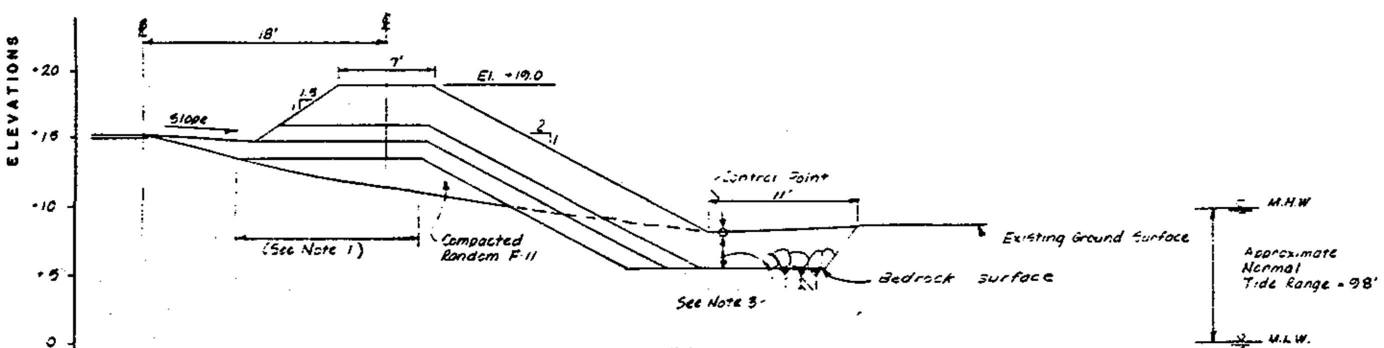
STA. 1 + 00



STA. 2 + 00



STA. 2 + 50



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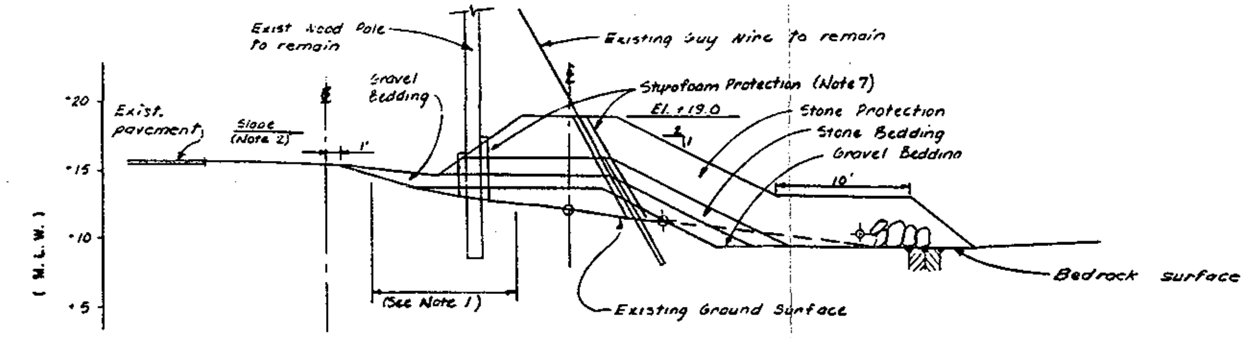

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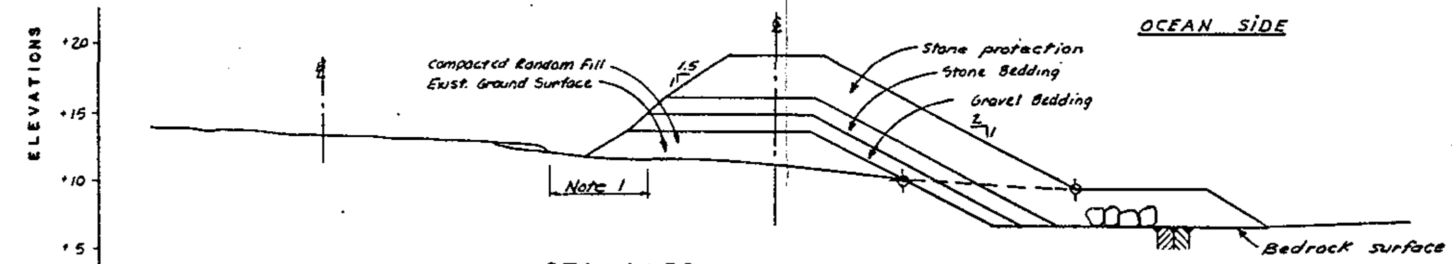

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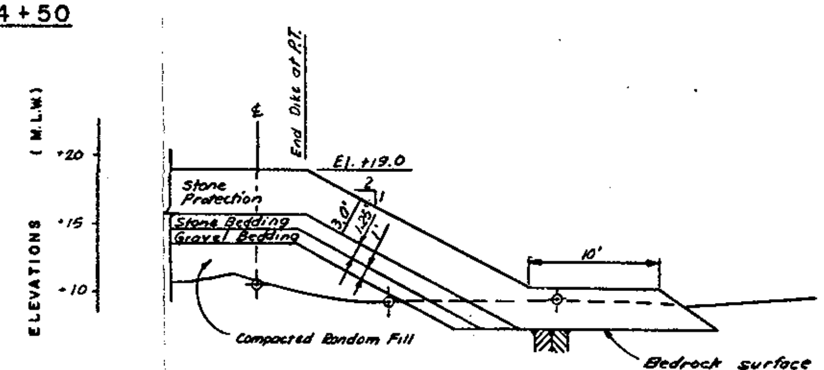

SECTION A/1

NOTES:

1. Remove surficial and partially buried boulders and blocks from side slope and foundation areas prior to placing random fill materials. Incorporate in toe construction.
2. Slope to drain (½" per foot).
3. When depth of stone protection is less than 3.0 ft. (measured vertically) provide a 10 foot (measured horizontally) berm of stone protection
4. Distance equals one foot from edge of pavement between stations 0+72± and 3+50, one foot from baseline between stations 3+50 and 4+15±.
5. Place gravel bedding and stone bedding between existing ground surface and stone protection.
6. Place stone bedding between stations 4+15± and 4+75±.
7. Place styrofoam (4 inches or greater in thickness) around pole and guy wire.

As Built Drawing
Contract No DACW 33-83-C-0074

VALUE ENGINEERING PAYS DIVIDENDS

SAFETY PAYS

GRAPHIC SCALES
1" = 5' 5' 0 5 10'

REVISION	DATE	DESCRIPTION	BY
	9-17-84	Final field corrections.	

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION
CORPS OF ENGINEERS
WALTHAM, MASS.

DES. BY J.H. | DR. BY J BM | CK. BY R.F.M.

WATER RESOURCES DEVELOPMENT PROJECT
THE NARROWS, ISLESBORO, MAINE
EMERGENCY SHORELINE PROTECTION
SECTIONS

SUBMITTED: G. F. Manemi, CHIEF, DESIGN SECTION
APPROVAL RECOMMENDED: CHIEF, ENGINEERING BRANCH
REVIEWED: PROJECT MANAGER
APPROVAL RECOMMENDED: CHIEF, PROJECT MNGT. BRANCH
APPROVED: CHIEF, ENGINEERING DIVISION
DATE AUG. 1983

SCALE AS SHOWN SPEC. NO. DACW33-83-B-0055
DRAWING NUMBER ISL-1
SHEET 2